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The International Bureau of WIPO
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Switzerland

Amendment of the claims under Article 19(1) (Rule 46)

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Applicant's or Agent's File Reference: PA0089WO

Dear sir:

The Applicant, who received the International Search Report relating to the above identified International Application transmitted on November 11, 2003, hereby files amendment under Article 19(1) as in the attached sheets.

The claims 1 and 2 are cancelled, the claims 3, 5 and 6 are amended, and the claim 4, 7, 8 and 9 are retained unchanged.

Please acknowledge the safe receipt of this document by returning the enclosed copy of this letter.

Very truly yours,



Sakio OBA (Agent)

Attachment:

(1) Amendment under Article 19(1)...3 sheets

請 求 の 範 囲

1. (削除)

2. (削除)

3. (補正後) 車両の車体速度を取得する車体速度取得手段と、

前記車両の操舵輪の転舵角を変更するステアリングの操作量を取得するステアリング操作量取得手段と、

前記車両の旋回の程度を示す横加速度関連量の実際量を実横加速度関連量として取得する実横加速度関連量取得手段と、

前記横加速度関連量の目標量である目標横加速度関連量の絶対値が、前記車体速度が所定値以上であるとき、少なくとも前記車体速度及び前記ステアリング操作量に基づいて予め定められた所定の規則に従って決定される前記横加速度関連量の基準量である基準横加速度関連量の絶対値以下となるように同車体速度に応じて前記目標横加速度関連量を算出するとともに、前記車体速度が前記所定値未満であるとき、前記基準横加速度関連量の絶対値以上となるように同車体速度に応じて前記目標横加速度関連量を算出する目標横加速度関連量算出手段と、

前記実横加速度関連量が前記目標横加速度関連量に近づくように前記車両の前輪及び後輪の各車輪に付与される制動力を制御する制動力制御手段と、

を備えた車両の運動制御装置。

4. 請求の範囲 3 に記載の車両の運動制御装置において、

前記目標横加速度関連量算出手段は、前記基準横加速度関連量に対して前記目標横加速度関連量が偏移する量を前記ステアリング操作量に応じて変更するように構成された車両の運動制御装置。

5. (補正後) 請求の範囲 3 又は請求の範囲 4 に記載の車両の運動制御装置において、

前記所定の規則は、前記車両の旋回特性に影響を与える同車両の実際の諸元値に基づいて前記基準横加速度関連量を決定するように構成されており、

前記目標横加速度関連量算出手段は、前記実際の諸元値の代わりに前記車体速度又は同車体速度及び前記ステアリング操作量に応じて同実際の諸元値から偏移する制御用諸元値に基づいて前記所定の規則に従って決定される前記基準横加速度関連量を前記目標横加速度関連量として算出するように構成された車両の運動制御装置。

6. (補正後) 車両の車体速度を取得する車体速度取得手段と、

前記車両の操舵輪の転舵角を変更するステアリングの操作量を取得するステアリング操作量取得手段と、

前記車両の旋回の程度を示す横加速度関連量の実際量を実横加速度関連量として取得する実横加速度関連量取得手段と、

前記横加速度関連量の目標量である目標横加速度関連量の絶対値が、少なくとも前記車体速度及び前記ステアリング操作量に基づいて予め定められた所定の規則に従って決定される前記横加速度関連量の基準量である基準横加速度関連量の絶対値以下となるように同目標横加速度関連量を算出する目標横加速度関連量算出手段と、

前記実横加速度関連量が前記目標横加速度関連量に近づくように前記車両の前輪及び後輪の各車輪に付与される制動力を制御する制動力制御手段と、

を備えた車両の運動制御装置。

7. 請求の範囲 6 に記載の車両の運動制御装置において、

前記目標横加速度関連量算出手段は、前記基準横加速度関連量に対して前記目標横加速度関連量が偏移する量を同基準横加速度関連量の絶対値に応じて変更するように構成された車両の運動制御装置。

8. 請求の範囲 6 又は請求の範囲 7 に記載の車両の運動制御装置において、

前記目標横加速度関連量算出手段は、前記目標横加速度関連量の絶対値が前記車両に発生するロール角の大きさに影響を与える同車両の実際の諸元値に応じて設定される目標横加速度関連量制限値を超えないように同目標横加速度関連量を算出するように構成された車両の運動制御装置。

9. 請求の範囲 6 又は請求の範囲 7 に記載の車両の運動制御装置であって、

前記車両が走行している路面と同車両のタイヤとの間の摩擦係数である路面摩擦係数を取得する路面摩擦係数取得手段と、

前記路面摩擦係数に応じて目標横加速度関連量制限値を設定するとともに前記目標横加速度関連量の絶対値が同目標横加速度関連量制限値より大きいとき同目標横加速度関連量の絶対値が同目標横加速度関連量制限値になるように同目標横加速度関連量を制限する目標横加速度関連量制限手段を備えた車両の運動制御装置。

CLAIMS amended under Article 19(1) (Rule 46)

1. (Cancelled)

2. (Cancelled)

3. (Amended) A motion control apparatus for a vehicle comprising:

vehicle-body speed obtaining means for obtaining a vehicle-body speed of the vehicle;

steering-member operating amount obtaining means for obtaining an operating amount of a steering member of the vehicle which changes a steering angle of steerable wheels of the vehicle;

actual lateral acceleration related quantity obtaining means for obtaining, as an actual lateral acceleration related quantity, an actual value of a lateral acceleration related quantity indicating the extent of turning of the vehicle;

target lateral acceleration related quantity calculating means for calculating a target lateral acceleration related quantity which is a target value of the lateral acceleration related quantity in accordance with the vehicle-body speed, in such a manner that

when the vehicle-body speed is at least a prescribed value, the absolute value of the target lateral acceleration related quantity is equal to or less than the absolute value of a reference lateral acceleration related quantity which is a reference value of the lateral acceleration related quantity determined by a prescribed rule based on at least the vehicle-body speed and the steering-member operating amount and

when the vehicle-body speed is less than the prescribed value, the absolute value of the target lateral acceleration related quantity is greater than or equal to the absolute value of the reference lateral acceleration related quantity; and

braking force control means for controlling a braking force applied to each of front and rear wheels of the vehicle so that the actual lateral acceleration related quantity approaches the target lateral acceleration related quantity.

4. A motion control apparatus for a vehicle according to claim 3, wherein the target lateral acceleration related quantity calculating means changes the amount by which the target lateral acceleration related quantity deviates from the reference lateral acceleration related quantity in accordance with the steering-member operating amount.

5. (Amended) A motion control apparatus for a vehicle according to claim 3 or 4, wherein

the prescribed rule determines the reference lateral acceleration related quantity based on an actual specification value of the vehicle which influences the turning properties of the vehicle; and

the target lateral acceleration related quantity calculating means calculates, as the target lateral acceleration related quantity, the reference lateral acceleration related quantity determined in accordance with the prescribed rule and on the basis of a control specification value instead of the actual specification value, the control specification value being deviated from the actual specification value in accordance with the vehicle-body

speed or the vehicle-body speed and the steering-member operating amount.

6. (Amended) A motion control apparatus for a vehicle comprising:

vehicle-body speed obtaining means for obtaining a vehicle-body speed of the vehicle;

steering-member operating amount obtaining means for obtaining an operating amount of a steering member of the vehicle which changes a steering angle of steerable wheels of the vehicle;

actual lateral acceleration related quantity obtaining means for obtaining, as an actual lateral acceleration related quantity, an actual value of a lateral acceleration related quantity indicating the extent of turning of the vehicle;

target lateral acceleration related quantity calculating means for calculating a target lateral acceleration related quantity which is a target value of the lateral acceleration related quantity, in such a manner that

the absolute value of the target lateral acceleration related quantity is equal to or less than the absolute value of a reference lateral acceleration related quantity which is a reference value of the lateral acceleration related quantity determined by a prescribed rule based on at least the vehicle-body speed and the steering-member operating amount; and

braking force control means for controlling a braking force applied to each of front and rear wheels of the vehicle so that the actual lateral acceleration related quantity approaches the target lateral acceleration related quantity.

7. A motion control apparatus for a vehicle according to claim 6, wherein the target lateral acceleration related quantity calculating means is constructed such that the amount by which the target lateral acceleration related quantity deviates from the reference lateral acceleration related quantity changes in accordance with the absolute value of the reference lateral acceleration related quantity.

8. A motion control apparatus for a vehicle according to claim 6 or 7, wherein the target lateral acceleration related quantity calculating means is constructed to calculate the target lateral acceleration related quantity in such a manner that the absolute value of the target lateral acceleration related quantity does not exceed a target lateral acceleration related quantity limiting value, which is set in accordance with an actual specification value of the vehicle which influences the generated roll angle of the vehicle.

9. A motion control apparatus for a vehicle according to claim 6 or 7, further comprising:

road-surface friction coefficient obtaining means for obtaining a road-surface friction coefficient, which is the coefficient of friction between a road surface on which the vehicle travels and tires of the wheels of the vehicle; and

target lateral acceleration related quantity limiting means for setting a target lateral acceleration related quantity limiting value in accordance with the road-surface friction coefficient and for limiting the target lateral acceleration related quantity, when the absolute value of the target lateral

acceleration related quantity is greater than the target lateral acceleration related quantity limiting value, in such a manner that the absolute value of the target lateral acceleration related quantity coincides with the target lateral acceleration related quantity limiting value.